ADDENDUM 2. PUBLIC COMMENTS ON Site Specific Environmental Assessment Rangeland Mormon Cricket Suppression Program Idaho EA Number ID-06-01 and APHIS Response..

ONE PUBLIC COMMENT WAS RECEIVED AND IT FOLLOWS IN ITS ENTIRIETY:

March 16, 2006

Dave McNeal
State Plant Health Director
UDSA APHIS PPQ
9134 W Blackeagle Dr.
Boise, ID 83709

RE: Xerces Society for Invertebrate Conservation and Idaho Conservation League comments on APHIS's Site Specific Environmental Assessment – Rangeland Mormon Cricket Suppression Program, 2006

Dear Mr. McNeal;

The Xerces Society for Invertebrate conservation has worked on issues related to biological diversity of western public lands for over 30 years. We have members in Idaho and throughout the US that utilize Idaho's public lands for recreational and scientific purposes.

The Idaho Conservation League has a long history of involvement with rangeland, species management and public health issues. As Idaho's largest conservation organization we represent members who live, work and recreate within the area affected by this program and who are very interested in this project.

As you know, our organizations have been concerned that previous APHIS programs were not fully protective of water quality, wildlife and human health. Indeed, in past years our concerns culminated in litigation.

We have reviewed APHIS's 2006 Environmental Assessment for its Idaho Mormon Cricket program. It is our belief that the 2006 program is a significant improvement over some past APHIS proposals. However, there are many aspects that cause us concern. We hope that our concerns can be addressed by APHIS as you develop your final plan of action for the 2006 season. We appreciate your ongoing efforts to develop a program that meets the needs of your agency and addresses our concerns.

Summary of Concerns:
1) You list the goal of the proposed suppression program in the EA "would be to reduce Mormon cricket outbreak population levels in order to protect rangeland ecosystems and/or private cropland." (EA Page 1)

The bulk of the scientific evidence available does not support that Mormon crickets are a threat to rangeland resources. There is no evidence to warrant control of Mormon crickets on rangeland for the benefit of wildlife or to protect the public. The EA does not provide enough evidence to evaluate the pros and cons of control efforts for the purpose of crop protection. This program should be reevaluated and scaled back to an appropriate size to meet more limited goals.

2) There are many false and misleading statements in the No Action Alternative section that would lead the reader to think that the No Action Alternative would have much greater negative impact than it really would.

3) Although both carbaryl bait and diflubenzuron will result in less mortality to non-target species the pesticides used in the past there are still substantial adverse ecosystem impact that have not been addressed.

4) The proposed buffers for aerial spraying of diflubenzuron are not large enough to protect water bodies.

5) A full cost benefit analysis should be completed to determine whether federal funds are being well spent.

6) APHIS should complete more frequent and intense monitoring to identify populations that can be controlled when they are small with ground based pesticide application equipment.

7) APHIS should monitor sites before and after spraying to determine if there is an impact on water quality or non-target species.

We have attached our comments at the end of this letter. Please do not hesitate to contact either of us if you have any questions regarding our comments.

Thank you,

Scott Hoffman Black
Xerces Society for Invertebrate Conservation

Justin Hayes
Idaho Conservation League

Xerces Society and Idaho Conservation League comments on APHIS's Site Specific Environmental Assessment – Rangeland Mormon Cricket Suppression Program, 2006

Need for the Proposed Action

You list the goal of the proposed suppression program in the EA "would be to reduce Mormon cricket outbreak population levels in order to protect rangeland ecosystems and/or private cropland." (EA page 1) emphasis added

As the impacts of Mormon crickets are markedly different on rangeland than they are for crops we address rangeland ecosystems and private croplands separately.

Mormon Crickets and Rangeland Health

There is no evidence to warrant control of Mormon crickets on rangeland. The bulk of the scientific evidence available does not support that Mormon crickets are a threat to rangeland resources. Mormon crickets are native insects that have inhabited these rangelands for millennia. They are an important food source for a variety of native birds as well as small mammals and other insects.

Although some authors have written that Mormon crickets and cattle compete for the same forage few actual field data are available documenting the effect of this insect on rangelands (Redak et al. 1992). Historically (during droughts of the Dust Bowl era of the 1930's), Mormon crickets achieved actual pest status in areas that were poorly managed and subjected to severe overgrazing (MacVean 1987). Redak et al. (1992) and MacVean (1987) provide two of the only recent studies that looked at the impact of Mormon crickets on rangeland. Both of these studies found that despite the reputation of Mormon crickets as a rangeland pest, there was little evidence that this insect significantly affects understory vegetative biomass or production of palatable forage (Redak et al. 1992 and MacVean 1987).

MacVean (1987) found that in mixed vegetation, forbs were the principle food category during nymphal development, grasses were a minor component, and shrubs dominated the adult diet. This implies low competition with domestic livestock for forage grasses (MacVean 1987).

Redak et al. (1992) looked at insects collected from experimental plots in July 1986. The average diet of Mormon cricket used in this study consisted of 51.1% sagebrush, 22.6% forbs, 7.3% grasses, and 6.3% arthropods. Small amounts of moss, fungi and seeds were also consumed.

Analysis of cricket crop contents suggested that sagebrush was fed upon predominately; there was little dietary overlap between crickets and cattle. Cover estimates which are commonly used by ranchers to estimate forage availability, provide deceptive

assessments of cricket effects, ultimately leading to an undeserved reputation as a rangeland pest (Redak et al. 1992).

Both studies suggest that these insects may actually be beneficial to the range ecosystem. Mormon crickets may actually make a net improvement to range condition by removing (at least to some extent) the sagebrush overstory (Redak et al 1992). With respect to the pest status of the Mormon cricket, their cannibalistic and predatory nature as well as scavenging on feces and carrion, deserve further study, since these components of the diet may serve to offset damage to range vegetation (MacVean 1987).

In light of the information presented above we believe your program to control Mormon crickets to protect rangeland ecosystems is unwarranted.

Mormon Crickets and Crop Damage
There is evidence that periodic outbreaks of Mormon crickets have caused severe damage to crops, especially wheat and alfalfa (MacVean 1987). But all of the evidence we have is from prior to 1960. Can APHIS present any recent information on Mormon crickets causing damage to crops? If so that information should be provided as a supplement to this EA so that the public can fairly evaluate the pros and cons of control efforts.

Wildlife Impact
The EA (Page 1) contends that these control programs may benefit habitat for some species of wildlife. We contend that the presence of the Mormon crickets outweigh any potential negative effects they might have. As stated earlier these are native insects that have evolved with these ecosystems. The list of species known to feed on Mormon crickets includes about 50 species of birds, rodents and reptiles (MacVean 1987).

As noted above Mormon crickets may improve range condition (Redak et al. 1992, MacVean 1987).

If there are legitimate wildlife related impacts from not controlling Mormon crickets these should be spelled out in a supplemental EA.

Destruction of Rangeland Revegetation Projects.
The Mormon cricket primarily feeds on shrubs including sagebrush. (MacVean 1987, Redak et al. 1992). Although there may be limited impact on some projects this is no reason to implement a large control effort. If there are legitimate revegetation concerns from not controlling Mormon crickets these should be spelled out in a supplemental EA.

Creation of Public Nuisances, and Endangerment of Road Traffic
The EA (Page 28) points out “it is not known whether traffic accidents have been directly attributable to (Mormon crickets)”. A large program is not needed and there is no evidence it will be effective in preventing crickets from crossing roads. Appropriating some funds to place signage to warn drivers would be a good measure and would meet your stated goal. We also do not believe that public nuisances are a good reason to implement a large scale Mormon cricket control program.

In summary there is no evidence to warrant control of Mormon crickets on rangeland for the benefit of livestock, wildlife or to protect the public. The EA does not provide enough evidence to evaluate the pros and cons of control efforts for the purpose of crop protection. This program should be reevaluated and scaled back to an appropriate size to meet more limited goals.

No Action Alternative

There are many statements in this section that would lead the reader to think that the No Action Alternative would have much greater negative impact than it really would. We do not believe that these statements are factually supported. Below we address just a few of these statements.

> Loss of plant cover could occur due to consumption by Mormon crickets. Nesting and cover habitat may be degraded for birds and other wildlife. The herbaceous understory is important to nesting success by sage grouse. EA Page 27. Emphasis added

You seem to imply that Mormon crickets could have a negative impact on sage grouse and other wildlife because of their negative impact on understory plants. This is counter to all available date. Redak et al. (1992) looked at insects collected from experimental plots in July 1986. The average diet of Mormon crickets in this study consisted of 51.1% sagebrush, 22.6% forbs, 7.3% grasses, and 6.3% arthropods. MacVean (1987) found that in mixed vegetation forbs were the principle food category during nymphal development, grasses were a minor component, and shrubs dominated the adult diet.

Redak et al. 1992 and MacVean (1987) both suggest that these insects may actually be beneficial to the range ecosystem. Mormon cricket are an essential component of the sagebrush-steppe ecosystem. Mormon crickets are themselves a major protein-rich source of food for birds. Mormon cricket feeding can stimulate plant growth by feeding and contribute to the nutrient cycling.

> Susceptibility to invasion by non-native plants is a consequence that would likely occur should the existing vegetation be removed by Mormon crickets. EA Page 27

Our research was not able to substantiate this claim. Indeed, we could not find a single study that supported this assumption. On the other hand there are numerous studies that have shown that cattle and roads are two major sources of noxious weeds. Equipment used for ground application of pesticides would also be a likely source.

> The damage caused by Mormon crickets could pose a risk to rare, threatened or endangered plants…EA page 27

Rare and endangered plants often do have a low number of individuals and limited distribution. They are often threatened by cattle grazing, off road vehicle use, fire and

many other natural and anthropogenic causes. Although Mormon crickets pose a threat it is likely a small one in any given area. Indeed you say on the one hand that Mormon crickets can harm these plants and on the other you maintain a three mile buffer around slickspot peppergrass (which we support) to protect the plant from the effect of the pesticide.

> Mormon crickets may feed on fungi (Pfadt 1994) so may pose a threat to biological soil crusts. EA page 27.

Our review of the Pfadt 1994 document demonstrated that the conclusions reached by APHIS are not consistent with the conclusions of the document cited. The exact statement from Pfadt (1994) is: "at certain times of season it may restrict its feeding to two to four staple foods available in its habitat. These may include various forbs, grasses, seeds, fungi, and arthropods."

There is no evidence that they eat biological soil crusts. Quite the opposite. Redak et al. (1992) found the average diet of Mormon cricket used in this study consisted of 51.1% sagebrush, 22.6% forbs, 7.3% grasses, and 6.3% arthropods with small amounts of moss, fungi and seeds emphasis added. MacVean (1987) found that in mixed vegetation forbs were the principle food category during nymphal development, grasses were a minor component, and shrubs dominated the adult diet.

> A significant portion of the American public has a negative response to insects and some persons may be clinically diagnosed as Entomophobic. EA Page 28
>
> Persons that are entomophilic may have reduced levels of concern and increased enjoyment from experiencing outbreaks for recreational or scientific purposes. EA Page 28

We are actually not sure how to respond here. Are there diagnosed entomophobs in the treatment area? Are you actually suggesting that treatment will help these people? Are you suggesting the entomophilic people will have increased enjoyment by outbreaks? This is ludicrous. This type of hyperbole should not be included in a federal document if you want to maintain credibility.

Pesticide Choice

If pesticides must be used to manage Mormon crickets to protect high value crops we feel that carbaryl bait and diflubenzuron are the best options. Both carbaryl bait and diflubenzuron will result in less mortality to non-target species, greater protection of pollinators, protection of water quality, etc. Carbaryl bait will have a greater ability to ensure that the pesticide is delivered on target, a reduction of drift. That said, there are still risks from these pesticides.

Carbaryl Bait

Carbaryl, even in bait form, is still a very toxic substance that can have significant, negative impacts in water quality and aquatic life. Carbaryl is a calbamate insecticide. It

inhibits the action of the enzyme acetyl cholinesterase (AChE) that is an essential component of insect, bird, fish, and mammal nervous systems. Carbaryl has "very high" toxicity levels for terrestrial invertebrates, aquatic invertebrates, and fish.

Carbaryl in bait form may stay active for extended periods of time before breaking down into less toxic components. If bait is leached into aquatic ecosystems it may have a severe adverse impact on individual organisms and the entire ecosystem. Direct contact with aquatic macroinvertebrates may cause immediate mortality and sub-lethal doses may cause the loss of ability to gather food or to bear young successfully. Aquatic macroinvertebrates are highly important components of aquatic ecosystems. Most fish species use aquatic macroinvertebrates as their primary food source.

Wetland invertebrates serve as a major food source of migratory birds as well as resident animals such as amphibians. The small amounts of insecticide that reach aquatic ecosystems can have an adverse impact on aquatic invertebrates and other aquatic animals.

Since wheat bran has nutritional value and is consumed by small mammals (Barrett 1998) carbaryl-treated baits may represent an important risk factor for these animals. Punzo (2003) reported reduced running speed and increased levels of cannibalism of young in rodents that feed on 2% carbaryl bait. They reported that the use of insecticide containing baits may increase mortality and reduce population densities in small mammals and that this might limit food for predators (Punzo 2003). Hoy and Shea (1981) reported depression in numbers of certain soil arthropod taxa up to 138 days after carbaryl treatment. Even carbaryl bait has been shown to have an impact on soil fauna (Schulze et al. 2003). The data presented in Schulze et al. (2003) suggest that even low dosage applications of carbaryl bait can have significant adverse effects on non-target arthropods.

Diflubenzuron

Dimilin is the trade name for the pesticide diflubenzuron. Dimilin acts as an insect growth inhibitor by arresting chitin synthesis, i.e., the formation of an insect's exoskeleton. There is ample evidence that Dimilin can cause adverse acute and chronic effects (is very highly toxic) to freshwater invertebrates, including crustaceans, mollusks, and insects (Hanson and Gartum 1981, Hurd et al. 1996, , McCasland et al. 1998, O'Halloran 1994, McKague and Pridmore 1978, Martinat et al. 1987, Sundaram et al 1990). Forest application of diflubenzuron can effect nontarget organisms in streams. In one study Dimilin was applied by helicopter to two watersheds in the Fernow Experimental Forest near Parsons, West Virginia. Taxa that had reduced mean densities in treatment watersheds included the stoneflies, *Leuctra* sp. and *Isoperla* sp., the mayfly, *Paraleptophlebia* sp., and the crane fly, *Hexatoma* sp (Hurd et al 1996). Sundaram et al. (1990) found significant mortality occurred in amphipoda and immature corixidae 1 to 6 days after the ponds were treated with Dimilin.

Dimilin also lethal to Lepidoptera caterpillars at extremely small quantities (Martinat 1987). Dimilin has been shown last weeks on foliage. Dimilin caused 100% mortality of

Douglas-fir tussock moth larvae up to seven weeks following application (Robertson and Boelter 1979). Another study found residue on foliage 21 days after application (Martinat 1987). Although Dimilin does not directly impact vertebrates its use has been shown to cause a dietary shift among songbirds. Bradley et al. (1993) found that after Dimilin spraying Lepidoptera larvae was reduced at treated sites. In addition, two bird species displayed reduced total gut biomass at treated sites. These data show that while diflubenzuron is not directly toxic to vertebrates, birds are affected indirectly through reduced availability of Lepidoptera larvae (Bradley et al. 1993).

Although diflubenzuron can be expected to break down into less toxic components quicker than carbaryl in bait form, it still can have adverse ecological consequences. Thus, there are clearly times when the use of diflubenzuron would be preferred over carbaryl. However, this general preference for diflubenzuron is tempered by the greater likelihood that diflubenzuron (since it is a liquid) will drift outside of the target area. In areas near water bodies, this could result in the diflubenzuron getting in waters of the United States and resulting in violations of the Clean Water Act and harm to aquatic organisms.

Project Area

On EA page 14 you state:

The proposed suppression area is therefore approximately 5,106,309 acres before subtraction of sensitive areas including buffers around water and other sites. APHIS estimates that no more than 10% of this area would be included in treatment blocks and maximum area treated within a block would vary from 1 to 50%.

According to your calculations 5000 to 250,000 would be treated under this plan. We believe that all areas not being treated for protection of high value crops be removed as potential treatment area. There is no justification for treating rangeland other than to protect crops.

Waters of the United States

We disagree with the narrow definition that APHIS has applied to water bodies. The EA defines water bodies as

> reservoirs, lakes, ponds left by seasonal streams, springs, wetlands, and perennial streams and rivers. EA Appendix 1 page 6

This definition is counter to the judicial understanding of water bodies that constitute "waters of the United States" and are thus protected from contamination and pollution under the Clean Water Act. Courts have consistently held that intermittent streams, even when water is not present, constitute waters of the United States.

We have previously raised concerns with APHIS regarding the potential for pesticides to find there way into waters of the United States. By failing to harmonize the APHIS definition of water bodies (which is used to govern the use of buffer strips) with the

Clean Water Act definition of 'waters of the United States,' APHIS is virtually assuring that this program will result in violation of the Clean Water Act.

Buffer Widths for Aerial Pesticide Applications.

The buffers you provide for aerial applications of diflubenzuron are not adequate to ensure there are not adverse aquatic ecosystem impacts from pesticide drift. There is ample evidence that Dimilin can cause adverse acute and chronic effect (is very highly toxic) to freshwater invertebrates, including crustaceans, mollusks, and insects (Hanson and Gartum 1981, Hurd et al. 1996, , Mccasland et al. 1998, Liber 1994, McKague and Pridmore 1978, Martinat et al. 1987, Sundaram et al 1990).

There are numerous studies that have assessed the movement of pesticide out of the intended spray area. These studies show how much drift can move out of an area and begin to address the potential impact from drifting pesticides. The *Grasshopper Integrated Pest Management User Handbook* (APHIS Technical Bulletin No. 1809) notes:

"Results of monitoring showed that when the standard 500 ft (153m) no spray buffer was employed, trace amounts of pesticide was **always** detected in aquatic habitats." (Chapter III.6-2. Grasshopper Treatment Effects on Aquatic Communities, by D. W. Beyers and L. C. McEwen)-(Emphasis added)

Penn State (1993) found drift at great distances. In an assessment of drift of malathion resulting from use to control boll weevil, malathion concentrations were found up to one kilometer (5/8 mile)—the greatest distance measured—from the point of application. According to the study the highest amount of drift at one kilometer occurred when atmospheric conditions were stable, meaning vertical air mass movements were dampened.

There are many more studies that show pesticides can drift much farther. Two field studies summarized in the 1997 EPA registration Eligibility Decision for Diflubenzon (one of the chemicals that could be used in the spray area) found that it drifted at least 1,200 feet. In Butte County, California, MCPA, dimethyl amine spray drifted 400 meters (1,300 feet) and in Tulare County, California, carbaryl drifted 550 meters (1,787 feet) (Majewski and Capel 1995). A study of carbaryl applications in orchards in Vermont found that aerially applied carbaryl repeatedly drifted to the most distant sampling point (about 500 yards) under all wind and atmospheric stability conditions tested.

Drift studies show consistently that pesticide drift can be found one kilometer (5/8 mile) from the edge of the spray site and sometimes much farther. Barnes et al. (1987) In Arkansas, drift of the herbicide propanil was concentrated enough at one kilometer to be injurious to crop plants. Ghassemi et al (1982) analyzed six different field studies of insecticide drift using a curve fitting method to estimate the "worst case" and "best case" estimates of deposition over distances up to ten kilometers (6.21 miles). Even the best case scenario plotted drift over two kilometer (1.25 miles) and the worse case scenario found that 4.5% of the applied dose of pesticide would drift one kilometer (5/8 mile),

1.7% to two kilometers (1 1/4 miles), 0.38% to five kilometers (3.1 miles), and 0.1% to ten kilometers (6.21 miles). In one of the studies analyzed, carbaryl was found at over 1% of the applied dose over seven kilometers (4.3 miles) from the spray edge.

It is clear from the research summarized above and from numerous studies not mentioned that pesticide will drift great distances and cannot be adequately controlled under many weather conditions.

Pesticide spray drift may have an especially severe impact on wetlands where there is not adequate flow to dilute the chemicals quickly. Wetland invertebrates serve as a major food source of migratory birds as well as resident animals such as amphibians.

In years past we have submitted significant documentation demonstrating that aerially applied liquid pesticides can reasonably be expected to drift more than 500 feet. Thus, it is a reasonable expectation that the proposed 500 foot buffers will not be protective of water quality and that drifting pesticides will result in violations of the Clean Water Act.

We note that APHIS is not relying on 500 foot buffers to be protective of certain protected species. At the recommendation of the US Fish and Wildlife Service APHIS will employ 0.25 mile buffers to protect bald eagles and 0.5 mile buffers to protect bull trout. APHIS will also employ a 1 mile buffer around organic crops.

We believe that APHIS's decision to utilize 500-foot buffers is not compliant with the Clean Water Act and could be construed as somewhat arbitrary, given that APHIS will be utilizing larger buffers to ensure that protected species are not harmed and organic crops are not reached by pesticide drift. If larger buffers are required to ensure that pesticides do not enter the water and harm ESA listed species, then larger buffers are needed to ensure that the CWA is not violated.

We urge APHIS to adopt 0.5 mile buffers for all water bodies, regardless of whether or not ESA listed species are present. We view this as a reasonable step to ensure that this program is compliant with the Clean Water Act.

Cost Benefit Analysis

We believe the costs of this project may be more than the resource is worth. Even in agricultural areas with higher monetary value than open rangeland, control campaigns were sometimes conducted at an expense greater than the value of the crop (Wakeland and Shull 1936, Wakeland 1959). To judge the economic impact of crickets on rangelands, an estimate of forage consumption is needed. The monetary value of forage lost in a given area can then be compared to the costs of controlling the insects to provide a cost/benefit ratio. MacVean (1991) predicts that a typical band of Mormon crickets (present for four days at a density of 10insect/m2) would remove approximately 5% of available forage. The loss of the forage and current value of the federal rangeland should be compared with the cost of treatment. We believe that the losses of forage are not significant enough to warrant the control campaign.

Monitoring

Past APHIS control projects have not been adequately monitored. APHIS should complete more frequent and intense monitoring to identify populations that can be controlled when they are small with ground based pesticide application equipment. Also APHIS should monitor sites before and after spraying to determine if there is an impact on water quality or non-target species.

Areas Specifically Excluded

Pages 18 and 19 includes a discussion of areas specifically excluded from this program. In years past, APHIS has proposed a more expansive list of areas that would be excluded from treatment.

We encourage APHIS to exclude all ACEC's, WAs, WSAs, DRNAs from consideration for treatments.

APHIS has determined that it will not treat Wilderness Study Areas (WSAs), with the exception of WSAs in Owyhee County. We believe that the Owyhee county WSA's should not treated.

WSA is the BLM designation for a certain class of lands that are under consideration for Wilderness designation. There is a similar designation employed by the Forest Service. However, the Forest Service does not call these lands WSAs, instead, they are called Recommended Wilderness Areas (and at times Inventoried Roadless Areas or IRAs). We ask that APHIS provide the same level of protection for FS recommended wilderness areas and IRAs as it is providing for BLM WSAs.

Incorporation of Prior Correspondence

Over the last several years our organizations have exchanged quite a bit of information with APHIS regarding each year's proposed cricket and/or grasshopper program. We believe that this past correspondence contains significant information that is relevant to APHIS's 2006 proposal and we are incorporating it into the 2006 file by reference.

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APHIS RESPONSES TO COMMENTS:

THE COMMENTERS EXPRESSED CONCERN ABOUT THE GOAL OF THE SUPPRESSION PROGRAM

Mormon crickets are omnivorous feeders and may occur in bands with great population densities. In their outbreak cycles they may cause significant feeding damage in some areas and little perceptible damage in other areas. The goal of the APHIS program is to suppress outbreaks and insure that significant damage to rangeland resources and crops is avoided. The feeding damage to sagebrush is of significant concern due to the requirements of sage obligate bird species such as sage grouse.

Fortunately the technologies now available for suppression of Mormon crickets can prevent the crop losses experienced by farmers in past generations. In Idaho, we have observed minor incursions into hay and grain fields in Owyhee and Oneida Counties during the current outbreaks. Strategically placed treatment blocks on federally managed rangelands have prevented significant crop damage in Idaho during the current century.

THE COMMENTERS EXPRESSED CONCERN ABOUT IMPACTS OF THE NO ACTION ALTERNATIVE

APHIS personnel have observed Mormon crickets stripping bark from sagebrush as well as feeding on foliage of shrubs, forbs and grasses in Idaho. Feeding damage during outbreaks may reduce the food and cover available to sensitive species such as sage grouse. The suppression of large outbreaks of Mormon crickets using the MRAATs Alternative leaves adequate numbers of insects to serve as food stock for insectivores.

The sagebrush steppe in Idaho is in an accelerated state of ecological change due to factors mentioned in the EA. Any removal of native vegetation may allow invasion by non-native plant species.

Mormon crickets are omnivorous feeders on foliage, stems and seeds of many plants. APHIS personnel have observed that Mormon crickets may often select a single plant type at any given site and feed on that plant exclusively. Such feeding might target rare or endangered plants. Indeed, one could posit that some plant species may have reached their rare status because they were evolutionary dead ends due to feeding preferences of native herbivores such as Mormon crickets. APHIS provides provisions in the EA so that land managers can request treatment inside the three mile buffer if circumstances require it.

Because fungi and moss are known to be part of the diet of Mormon crickets, APHIS maintains it is reasonable to believe that biological soil crust might be subject to feeding.

APHIS is not aware of medical diagnoses of entomophobia for any persons around the areas under consideration. However, APHIS personnel have had many face to face and telephone encounters with individuals who have expressed great fear and loathing of Mormon crickets. Additionally, APHIS has received the following comments in

response to scoping actions: "…As we are a hospitality property catering to group functions and weddings these pests caused us, and our guests intense distress…" "… It is not a matter of convenience, it is a matter of hazard to our health. The crickets return over and over again despite the bait. They eat our garden, trees and vegetation. They eat all plants available to them. They crawl into the house, under the house, under the decks and fall into the basement stairways and window wells despite the bait. They make life miserable! We cannot allow our children outside during the occurrences. They crawl onto the children and bite them…."

APHIS does admit we were not aware of the usage of "entomophilia" which is currently prevalent on the internet. We did not intend to address the use of insects in human sexual perversion. We did intend to consider the positions expounded by individuals who have responded to our scoping process with statements like, "…Insects are wildlife – as fascinating and splendid as a bull elk or a sage grouse…". Additionally, Wendell Wood wrote in the April-June 2003 Issue of Oregon Conifer, Journal of the Oregon Chapter of the Sierra club, "… This Summer, a lesser known but equally amazing wildlife spectacle awaits visitors to the Klamath Marsh NWR, the Klamath Marsh's clear-winged grasshopper (*Camnula pellucida*). Not seen on the Klamath Marsh in "biblical" proportions since the early 1990s, insect and other wildlife enthusiasts may thrill again to the sight of clouds of grasshoppers as you stroll through the refuge grassland meadows. … Please contact the refuge and ask that this wildlife spectacle not be diminished…"

THE COMMENTERS EXPRESSED CONCERN ABOUT PESTICIDE CHOICE
APHIS agrees that carbaryl bait and diflubenzuron spray are the best options currently available to APHIS for Mormon cricket suppression in Idaho. We maintain that the protective measures specified in the EA will minimize unintended impacts and prevent significant impacts. APHIS will abide by all requirements under Federal Insecticide Fungicide and Rodenticide Act (FIFRA), and APHIS will utilize buffers as specified in the EA. On February 1, 2005 The Environmental Protection Agency (EPA) published a proposed rule to codify their guidance regarding the interplay of the Clean Water Act (CWA) with FIFRA. Under this guidance and rule, application of pesticides over or near water would not be a violation of CWA as long as the application is in accordance with FIFRA. The EPA requirement for diflubenzuron aerial spray under FIFRA is to provide a 150 foot treatment buffer around water. APHIS proposes a buffer which exceeds the requirement under FIFRA by a factor of 3.3. The EPA requirement for carbaryl bait is to not apply directly to water. APHIS provides a 500 foot aerial buffer and a 50 foot ground buffer to insure that no direct application occurs.

THE COMMENTERS EXPRESSED CONCERN ABOUT PROJECT AREA
At this time APHIS cannot predict precisely where treatment blocks may need to be defined within the project area.

THE COMMENTERS EXPRESSED CONCERN ABOUT WATERS OF THE UNITED STATES
On February 1, 2005 The Environmental Protection Agency (EPA) published a proposed rule to codify their guidance regarding the interplay of the Clean Water Act (CWA) with

FIFRA. Under this guidance and rule, application of pesticides over or near water would not be a violation of CWA as long as the application is in accordance with FIFRA.

THE COMMENTERS EXPRESSED CONCERN ABOUT AERIAL SPRAY BUFFERS
Buffers are proposed to insure that the amount of drift which may reach water or other sensitive sites is not great enough to cause significant impacts. Buffers are not constructed only to account for insecticide drift. Buffer sizes are normally determined through the intensive biological assessment and biological opinion process required under the Endangered Species Act. The buffers for bald eagles were developed under the national biological assessment and national biological opinion of 1987. The 1987 biological assessment states that no toxic effects are anticipated on bald eagles and that no toxic effects are anticipated on their principal food source, fish. Therefore, it appears the buffers consider not only the potential impacts of insecticides on the endangered species and it's food source, but rather, the potential for the entirety of the proposed action to impact the endangered species. In the case of the eagle buffers, the potential for noise disturbance of nest sites and the potential for aerial collisions between eagles and spray planes appear to be included in the decision regarding buffer distances. In the case of bull trout and Snake River snails, no national biological assessment and biological opinion have yet been completed. (The national biological assessment has been under way for several years and has now been submitted by APHIS to FWS.) Because neither APHIS nor FWS have sufficient resources in Idaho to complete the biological assessment and biological opinion processes in sufficient detail to determine the minimum required protective measures for these species, we have conducted local consultations to arrive at buffers which would offer protection beyond any reasonable doubt. When the national biological assessment and biological opinion are complete, we anticipate these buffers will diminish. The large buffer around organic crops is to assure that no detectable levels of drift are likely to reach the crops.

APHIS is confident that the proposed action is consistent with CWA requirements as expressed in EPA Guidance.

THE COMMENTERS EXPRESSED CONCERN ABOUT COST/BENEFIT ANALYSIS
The economics of Mormon cricket suppression are difficult to calculate, may require assumptions that cover multiple years, are somewhat site specific and are beyond the purview of APHIS.

THE COMMENTERS EXPRESSED CONCERN ABOUT INSECT MONITORING
APHIS utilizes a number of intermittent as well as permanent employees for field scouting and relies on reports from land managers and the public to determine where outbreak populations are occurring. APHIS does utilize ground based application units when and where feasible.

THE COMMENTERS EXPRESSED CONCERN ABOUT ENVIORNMENTAL MONITORING
APHIS abides by the Grasshopper/Mormon Cricket Environmental Monitoring Plan.

THE COMMENTERS EXPRESSED CONCERN ABOUT AREAS SPECIFCALLY EXCLUDED

APHIS works with federal land managers to insure that laws, rules and management objectives are followed on all special areas including ACECs, WAs, WSAs, DRNAs, RWAs, IRAs.